Request to Archive
With The National Centers for Environmental Information
For Integrated POES/MetOp-B SEM Processed Data
Provided by NGDC>STP

2012-11-13

This information will be used by NCEI to conduct an appraisal and make a decision on the request.

1. Who is the primary point of contact for this request?

Janet Green
NGDC
Data Manager
303-497-6686
janet.green@noaa.gov
Calls taken by Janet Machol.

2. Name the organization or group responsible for creating the dataset.

NOAA NGDC

3. Provide an overview summarizing the scope of data you want to archive. Describe the outputs, data variables, including their measurement resolution and coverage.

We wish to archive the processed data from SEM-2 instrument suite on the NOAA POES and MetOp satellites that provides measurements of electrons and protons over a range of energy levels. About 200 MB/day total for the six MetOp and POES satellites are sent from SOCC. Ultimately, the MetOp and POES data will be archived it at NGDC in two forms -- incremental and processed files. This submission agreement is to archive the processed data. A separate agreement has been submitted to archive the raw data.

4. What is the time period covered by the dataset? (YYYY-MM-DD, YYYY-MM or YYYY)

From 2011-04-30
Ongoing as continuous updates to the data record

5. Edition or version number(s) of the dataset:

1

6. Describe the level to which the data are processed. For example, are these unprocessed raw observations, derived parameters, quality controlled or inter-calibrated data, etc.?

These are processed data. The raw sensor counts have been transformed to physical parameters, error bars have been estimated, and additional parameters have been added for putting the data into a magnetospheric context.

7. Approximate date when the dataset was or will be released to the public:

2013-01-01

8. Who are the expected users of the archived data? How will the archived data be used?

There are many possible users of the POES/MetOp data including those interested in the near real time data for space weather operations as well as those interested in the retrospective data for detailed analysis. The raw POES/MetOp

data are telemetered to the ground and processed by NSOF once per 90 minute orbit. Once the data are received at NGDC they are processed into physical units. These near real time data are of interest to SWPC, DoD, AFWA, NRO and commercial satellite operators. The data for each satellite are collected at a daily cadence and made available to users for retrospective studies. The primary users of the retrospective data are government and commercial satellite providers interested in associating satellite anomalies with space weather and researchers interested in understanding magnetospheric physics.

9. Has the dataset undergone user evaluation and/or an independent review process? Did NCEI participate in design reviews?

The POES and MetOp particle data have been used in many peer-reviewed publications. An example is:

Rodger, C. J., M. A. Clilverd, J. C. Green, and M. M. Lam (2010), Use of POES SEM-2 observations to examine radiation belt dynamics and energetic electron precipitation into the atmosphere, J. Geophys. Res., 115, A04202, doi:10.1029/2008JA014023.

10. Describe the dataset's relationship to other archived datasets, such as earlier versions or related source data. If this is a new version, how does it improve upon the previous version(s)?

NGDC currently archives POES/MetOp data from SWPC that includes a raw and processed dataset. The processed data described here is created from a separate processing system. This new system was intended to improve upon and replace SWPC's system. At some point in the future SWPC will likely discontinue it's processing.

11. List the input datasets and ancillary information used to produce the data.

NOAA 15, 16, 17, 18, 19, METOP-A, and METOP-B raw data are the basis for the processed data. Ancillary information included the IGRF magnetic field files are needed for processing.

12. List web pages and other links that provide information on the data.

The metadata (yet to be written) will comply with ISO 19115.

The processed data will be netCDF.

13. List the kinds of documents, metadata and code that are available for archiving. For example, data format specifications, user guides, algorithm documentation, metadata compliant with a standard such as ISO 19115, source code, platform/instrument metadata, data/process flow diagrams, etc.

1. Internal Users guide
   External users guide
   ATBD or Technical document
   System Maintenance Manual

14. Indicate the data file format(s).

1. netCDF-4

15. Are the data files compressed?

No

16. Provide details on how the files are named and how they are organized (e.g., file_name_pattern_YYYYMM.tar in monthly aggregations).

The processed file names will be
sss_yyyymmdd.nc NetCDF-4 daily files

where 'sss' is the satellite identifier, 'yyyy' is the year, 'mm' is the month, and 'dd' is the day of the month.
The files will be organized by type and then by date.

17. Explain how to access sample data files and/or a file listing for previewing. If it is not available now, when will it be available?

Similar data can currently be accessed from:
http://ngdc.noaa.gov/stp/satellite/poes/dataaccess.html

The new archiving scheme will involve incrementals instead of incrementals that have been combined into daily incremental files. The processed data will be further processed than previously and be in NetCDF form instead of binary.

18. What is the total data volume to be submitted?

Continuous Data: data volume rate for a continuous data production.

Total Data Volume Rate:	180MB per Day
Data File Frequency:	7 per Day
Data Production Start:	2013-01-01

19. Are later updates, revisions or replacement files anticipated? If so, explain the conditions for submitting these additional data to the archive.

The data quality can always be improved. We are currently investigating a new procedure for removing contamination from the particle detectors. If that procedure proves to be effective it will likely replace the current system. The procedure would be different enough that we would likely call it another dataset instead of an updated version.

20. Describe the server that will connect to the ingest server at NCEI for submitting the data.

Physical Location:	NGDC
System Name:	semprocess
System Owner:	NGDC
Additional Information:	Add comments as needed on applicable data types, etc.

21. What are the possible methods for submitting the data to NCEI? Select all that apply.

r Processed data via NGDC in-house ingest mechanisms.

22. Identify how you would like NCEI to distribute the data. Web access support depends on the resources available for the dataset.

1. Direct download links

23. Will there be any distribution, usage, or other restrictions that apply to the data in the archive?

No known constraints apply to the data.

24. Discuss the rationale for archiving the dataset and the anticipated benefits. Mention any risks associated with not archiving the dataset at NCEI.

The data are used by NOAA customers to mitigate various space weather impacts such as radiation damage to satellites, damage to power grids, and GPS errors. In particular:
Airlines use products derived from the POES/Metop energy flux and high energy ion data to identify areas of communication loss.

Power companies use products derived from the POES/Metop energy flux data to manage the grid and avoid damage and black outs due to ground induced currents.
GPS customers use products derived from POES/Metop energy flux measurements to quantify GPS errors.
Satellite operators use medium and high energy particle flux to assess and mitigate satellite malfunctions.
Satellite launch operators use medium and high energy particle flux to determine launch safety.
NASA uses medium and high energy particle flux from POES/Metop to assess safety risks to astronauts and equipment.
Scientists use this data to develop and verify models of the Earth's space environment.

25. Are the data archived at another facility or are there plans to do so? Please explain.
No

26. Is there an existing agreement or requirement driving this request to archive? Have you already contacted someone at NCEI?
Data from POES/MetOp space weather sensors are needed to satisfy several priority 1 Consolidated Observational Requirements List(CORL) requirements including low Earth orbit (LEO) auroral particle energy flux, medium and high energy electron flux, and energetic ion flux.

NAO 212-15 requires support for the "end-to-end data management lifecycle" of data, and this request supports the archival provisions stated therein.

27. Do you have a data management plan for your data?
No

28. Have funds been allocated to archive the data at NCEI?
No

29. Identify the affiliated research project, its sponsor, and any project/grant ID as applicable.
SEM-2

30. Is there a desired deadline for NCEI to archive and provide access to the data?
Archive by: 2018-01-01
Accessible by:

31. Add any other pertinent information for this request.
None